IN THE CLAIMS:

1. (Currently Amended) A system, comprising:

a first heat exchanger adapted to receive a fluid from a heat source and a working fluid, wherein, when the working fluid is passed through the first heat exchanger, the working fluid is converted to a supercritical vapor via heat transfer from the heat contained in said fluid from said heat source, wherein a temperature-enthalpy profile of said working fluid in the first heat exchanger is approximately linear as the working fluid changes state from a liquid to a supercritical vapor;

at least one turbine adapted to receive said vapor <u>and adapted to drive at least one generator to thereby produce electrical power</u>;

an economizer heat exchanger adapted to receive exhaust vapor from said at least one turbine and said working fluid, wherein a temperature of the working fluid is adapted to be increased via heat transfer with said exhaust vapor from said at least one turbine prior to the introduction of said working fluid into said first heat exchanger;

a condenser heat exchanger that is adapted to receive said exhaust vapor from said at least one turbine after said exhaust vapor has passed through said economizer heat exchanger and a cooling fluid, wherein a temperature of said exhaust vapor is reduced via heat transfer with said cooling fluid; and

a pump that is adapted to circulate said working fluid to said economizer heat exchanger.

2. (Canceled)

3. (Original) The system of claim 1 further comprising a desuperheater heat exchanger that is adapted to decrease the temperature of the exhaust vapor from said at least one turbine via direct contact heat transfer with said exhaust vapor from the at least one turbine prior to introduction of said exhaust vapor into said condenser heat exchanger.

4. (Original) The system of claim 1 wherein said working fluid is a single component other than water.

5. (Original) The system of claim 1 wherein said working fluid is a combination of multiple components, none of which is water.

6. (Original) The system of claim 1, wherein said working fluid is HCFC-123.

7. (Original) The system of claim 1 wherein the working fluid is HCFC-123 and said fluid from said heat source has a temperature of between approximately 350°F and 1500°F.

8. (Original) The system of claim 7 wherein said pump is adapted to operate at a pressure greater than approximately 200 psig.

9. (Original) The system of claim 7 wherein said condenser heat exchanger is adapted to condense the exhaust vapor from said at least one turbine to a liquid at a temperature between approximately 50°F and 200°F.

10. (Original) The system of claim 1, wherein said working fluid is HFC-134a.

11. (Original) The system of claim 1 wherein the working fluid is HFC-134a and said fluid from said heat source has a temperature of between approximately 250°F and 1100°F.

12. (Original) The system of claim 11 wherein said pump is adapted to operate at a pressure greater than approximately 320 psig.

13. (Original) The system of claim 11 wherein said condenser heat exchanger is adapted to condense the exhaust vapor from said at least one turbine to a liquid at a temperature between approximately 50°F and 170°F.

14. (Original) The system of claim 1 wherein the working fluid is ammonia and said fluid from said heat source has a temperature less than approximately 400°F.

15. (Original) The system of claim 14 wherein said pump is adapted to operate at a pressure greater than approximately 220 psig.

16. (Original) The system of claim 14 wherein said condenser heat exchanger is utilized to condense said exhaust vapor from said at least one turbine to a liquid at a temperature between approximately 50°F and 160°F.

17. (Original) The system of claim 1 wherein said fluid from said heat source is an exhaust fluid from a combustion gas turbine.

18. (Original) The system of claim 1 wherein said fluid from said heat source is a fluid from at least one of an industrial process and a manufacturing process.

19. (Original) The system of claim 1 wherein said fluid from said heat source is an exhaust fluid from an internal combustion engine.

20. (Canceled)

21. (Canceled)

22. (Original) The system of claim 1 wherein said fluid from said heat source is a fluid that is extracted from an intermediate stage of compression of a multi-stage gas compressor.

23. (Original) The system of claim 1 wherein said fluid from said heat source is a compressed gas that has exited a final stage of compression in a multi-stage compressor.

24. (Canceled)

25. (Canceled)

26. (Canceled)

27. (Canceled)

28. (Currently Amended) The system of ~~claim 26~~ claim 1 wherein the electrical power generated is utilized in part or in full to drive at least one electrically powered refrigeration device.

29. (Currently Amended) ~~The method of claim 27 wherein the electrical power generated is utilized in part or in full to drive at least one electrically powered refrigeration device~~ The system of claim 1, further comprising a suction drum positioned downstream of said first heat exchanger and upstream of said turbine, said supercritical vapor from said first heat exchanger being adapted to flow through said suction drum to said turbine.

30. (Canceled)

31. (Canceled)

32. (Canceled)

33. (Canceled)

34. (Canceled)

35. (Original) The system of claim 1, wherein said fluid from said heat source is a fluid that is extracted from an intermediate stage of compression of a multi-stage gas compressor of a combustion gas turbine, and wherein said at least one turbine is adapted to drive at least one compressor of a refrigeration system to thereby produce refrigeration which is utilized to chill air entering the combustion gas turbine.

36. (Currently Amended) A system, comprising:

a first heat exchanger adapted to receive a fluid from a heat source and a liquid working fluid, wherein, when the liquid working fluid is passed through the first heat exchanger, the liquid working fluid is converted to a vapor via heat transfer from the heat contained in said fluid from said heat source;

at least one turbine adapted to receive said vapor;

a desuperheater heat exchanger adapted to receive exhaust vapor from said at least one turbine and a portion of the liquid working fluid extracted upstream of the first heat exchanger, wherein the temperature of the exhaust vapor from the at least one turbine is adapted to be reduced via heat transfer by direct contact and mixing with said liquid working fluid in said desuperheater heat exchanger to thereby produce a cooled exhaust vapor exiting said desuperheater heat exchanger that is cooled to its approximate dew point temperature;

a condenser heat exchanger that is adapted to receive ~~working fluid~~ said cooled exhaust vapor exiting said desuperheater heat exchanger and a cooling fluid, wherein a

temperature of said ~~working fluid~~ cooled exhaust vapor is adapted to be reduced via heat transfer with said cooling fluid in said condenser heat exchanger; and

a pump adapted to circulate said liquid working fluid to said first heat exchanger.

37. (Canceled)

38. (Currently Amended) The system of claim 36 further comprising an economizer heat exchanger positioned upstream of said first heat exchanger, said economizer heat exchanger adapted to receive said liquid working fluid and at least a portion of said exhaust vapor from said at least one turbine, whereby a temperature of the liquid working fluid may be increased in said economizer heat exchanger prior to introduction of the liquid working fluid into the first heat exchanger via heat transfer with the exhaust vapor from the at least one turbine.

39. (Canceled)

40. (Currently Amended) The system of claim 36 wherein said liquid working fluid is a single component other than water.

41. (Currently Amended) The system of claim 36 wherein said liquid working fluid is a combination of multiple components, none of which is water.

42. (Currently Amended) The system of claim 36, wherein said liquid working fluid is HCFC-123.

43. (Currently Amended) The system of claim 36 wherein the liquid working fluid is HCFC-123 and said fluid from said heat source has a temperature of between approximately 350°F and 1500°F.

44. (Original) The system of claim 43 wherein said pump is adapted to operate at a pressure greater than approximately 200 psig.

45. (Currently Amended) The system of claim 43 wherein said condenser heat exchanger is adapted to condense said cooled exhaust vapor from said desuperheater heat exchanger from a vapor to a liquid at a temperature between approximately 50°F and 200°F.

46. (Currently Amended) The system of claim 36, wherein said liquid working fluid is HFC-134a.

47. (Currently Amended) The system of claim 36 wherein the liquid working fluid is HFC-134a and said fluid from said heat source has a temperature of between approximately 250°F and 1100°F.

48. (Original) The system of claim 46 wherein said pump is adapted to operate at a pressure greater than approximately 320 psig.

49. (Currently Amended) The system of claim 46 wherein said condenser heat exchanger is adapted to condense said cooled exhaust vapor from said desuperheater heat exchanger from a vapor to a liquid at a temperature between approximately 50°F and 170°F.

50. (Currently Amended) The system of claim 36 wherein the liquid working fluid is ammonia and said fluid from said heat source has a temperature less than approximately 400°F.

51. (Original) The system of claim 50 wherein said pump is adapted to operate at a pressure greater than approximately 220 psig.

52. (Currently Amended) The system of claim 50 wherein said condenser heat exchanger is adapted to condense said cooled exhaust vapor from said desuperheater heat exchanger from a vapor to a liquid at a temperature between approximately 50°F and 160°F.

53. (Original) The system of claim 36 wherein said fluid from said heat source is an exhaust fluid from a combustion gas turbine.

54. (Original) The system of claim 36 wherein said fluid from said heat source is a fluid from at least one of an industrial process and a manufacturing process.

55. (Original) The system of claim 36 wherein said fluid from said heat source is an exhaust fluid from an internal combustion engine.

56. (Original) The system of claim 36 wherein said vapor exiting said first heat exchanger is a subcritical vapor.

57. (Original) The system of claim 36 wherein said vapor exiting said first heat exchanger is a supercritical vapor.

58. (Original) The system of claim 36 wherein said fluid from said heat source is a fluid that is extracted from an intermediate stage of compression of a multi-stage gas compressor.

59. (Original) The system of claim 36, wherein said fluid from said heat source is a fluid that is extracted from an intermediate stage of compression of a multi-stage gas compressor of a combustion gas turbine, and wherein said at least one turbine is adapted to drive at least one compressor of a refrigeration system to thereby produce refrigeration which is utilized to chill air entering the combustion gas turbine.

60. (Original) The system of claim 36 wherein said fluid from said heat source is a compressed gas that has exited a final stage of compression in a multi-stage compressor.

61. (Original) The system of claim 36 wherein said at least one turbine is adapted to produce mechanical shaft horsepower for an industrial, commercial, or manufacturing process.

62. (Original) The system of claim 36 wherein said at least one turbine is adapted to drive at least one compressor of a refrigeration system to thereby produce refrigeration, which may be utilized to chill the air entering a combustion gas turbine or to provide refrigeration to any other industrial, commercial, or residential refrigeration demand.

63. (Original) The system of claim 36 wherein said at least one turbine is adapted to drive at least one generator to thereby produce electrical power.

64. (Original) The system of claim 36 wherein said at least one turbine is adapted to drive at least one compressor of a refrigeration system to thereby produce refrigeration, which may be utilized to chill the air entering a combustion gas turbine or to provide refrigeration to any other industrial, commercial, or residential refrigeration demand and said at least one turbine is adapted to drive at least one generator to produce electrical power.

65. (Original) The system of claim 63 wherein the electrical power generated is utilized in part or in full to drive at least one electrically powered refrigeration device.

66. (Original) The method of claim 64 wherein the electrical power generated is utilized in part or in full to drive at least one electrically powered refrigeration device.

67. (Original) The system of claim 53 wherein said at least one turbine is adapted to drive at least one compressor of a refrigeration system to thereby produce refrigeration to chill air entering said combustion gas turbine.

68. (Original) The system of claim 53 wherein said at least one turbine is adapted to drive at least one generator to thereby produce electrical power.

69. (Original) The system of claim 51 wherein said at least one turbine is adapted to drive at least one compressor of a refrigeration system to produce refrigeration to chill air entering said combustion gas turbine and said at least one turbine is adapted to drive at least one generator to produce electrical power.

70. (Original) The system of claim 68 wherein the electrical power generated is utilized in part or in full to drive at least one electrically powered refrigeration device.

71. (Original) The system of claim 69 wherein the electrical power generated is utilized in part or in full to drive at least one electrically powered refrigeration device

72. (Previously Presented) A system, comprising:

a first heat exchanger adapted to receive an exhaust fluid from a combustion gas turbine and a working fluid, wherein, when the working fluid is passed through the first heat exchanger, the working fluid is converted to a vapor via heat transfer from the heat contained in said exhaust fluid from said combustion gas turbine;

at least one turbine adapted to receive said vapor;

an economizer heat exchanger adapted to receive exhaust vapor from said at least one turbine and said working fluid, wherein a temperature of the working fluid is

adapted to be increased via heat transfer with said exhaust vapor from said at least one turbine prior to the introduction of said working fluid into said first heat exchanger;

a condenser heat exchanger that is adapted to receive said exhaust vapor from said at least one turbine after said exhaust vapor has passed through said economizer heat exchanger and a cooling fluid, wherein a temperature of said exhaust vapor is reduced via heat transfer with said cooling fluid; and

a pump that is adapted to circulate said working fluid to said economizer heat exchanger.

73. (Previously Presented) A system, comprising:

a first heat exchanger adapted to receive a fluid from a heat source and a working fluid, wherein, when the working fluid is passed through the first heat exchanger, the working fluid is converted to a vapor via heat transfer from the heat contained in said fluid from said heat source;

at least one turbine adapted to receive said vapor and to drive at least one compressor of a refrigeration system to thereby produce refrigeration, which may be utilized to chill the air entering a combustion gas turbine or to provide refrigeration to any other industrial, commercial, or residential refrigeration demand;

an economizer heat exchanger adapted to receive exhaust vapor from said at least one turbine and said working fluid, wherein a temperature of the working fluid is adapted to be increased via heat transfer with said exhaust vapor from said at least one turbine prior to the introduction of said working fluid into said first heat exchanger;

a condenser heat exchanger that is adapted to receive said exhaust vapor from said at least one turbine after said exhaust vapor has passed through said economizer heat exchanger and a cooling fluid, wherein a temperature of said exhaust vapor is reduced via heat transfer with said cooling fluid; and

a pump that is adapted to circulate said working fluid to said economizer heat exchanger.

74. (Previously Presented) The system of claim 73 wherein said at least one turbine is further adapted to drive at least one generator to thereby produce electrical power.

75. (Previously Presented) The system of claim 74 wherein the electrical power generated is utilized in part or in full to drive at least one electrically powered refrigeration device.

76. (Previously Presented) A system, comprising:

a first heat exchanger adapted to receive an exhaust fluid from a combustion gas turbine and a working fluid, wherein, when the working fluid is passed through the first heat exchanger, the working fluid is converted to a vapor via heat transfer from the heat contained in said exhaust fluid from said combustion gas turbine;

at least one turbine adapted to receive said vapor and to drive at least one compressor of a refrigeration system to thereby produce refrigeration to chill air entering said combustion gas turbine;

an economizer heat exchanger adapted to receive exhaust vapor from said at least one turbine and said working fluid, wherein a temperature of the working fluid is

adapted to be increased via heat transfer with said exhaust vapor from said at least one turbine prior to the introduction of said working fluid into said first heat exchanger;

a condenser heat exchanger that is adapted to receive said exhaust vapor from said at least one turbine after said exhaust vapor has passed through said economizer heat exchanger and a cooling fluid, wherein a temperature of said exhaust vapor is reduced via heat transfer with said cooling fluid; and

a pump that is adapted to circulate said working fluid to said economizer heat exchanger.

77. (Previously Presented) The system of claim 76 wherein said at least one turbine is adapted to utilize at least one intermediate heat exchanger adapted to receive a cold refrigerant liquid and exhaust a warm refrigerant vapor while cooling an intermediate operating fluid utilized in a heat exchanger adapted to receive said intermediate media and provide cooling for the air entering the turbine.

78. (Previously Presented) The system of claim 76 wherein said at least one turbine is adapted to utilize at least one intermediate refrigeration heat exchanger adapted to receive a cold refrigerant liquid and exhaust a warm refrigerant vapor while cooling an intermediate operating fluid utilized in a heat exchanger adapted to receive said intermediate media and provide cooling for the air entering the combustion gas turbine and at least some fraction of the work produced by the turbine is used to produce electrical power.

79. (Previously Presented) A system, comprising:

a first heat exchanger adapted to receive a fluid that is extracted from an intermediate stage of compression of a multi-stage gas compressor and a working fluid, wherein, when the working fluid is passed through the first heat exchanger, the working fluid is converted to a vapor via heat transfer from the heat contained in said fluid extracted from said intermediate stage of compression of said multi-stage gas compressor;

at least one turbine adapted to receive said vapor;

an economizer heat exchanger adapted to receive exhaust vapor from said at least one turbine and said working fluid, wherein a temperature of the working fluid is adapted to be increased via heat transfer with said exhaust vapor from said at least one turbine prior to the introduction of said working fluid into said first heat exchanger;

a condenser heat exchanger that is adapted to receive said exhaust vapor from said at least one turbine after said exhaust vapor has passed through said economizer heat exchanger and a cooling fluid, wherein a temperature of said exhaust vapor is reduced via heat transfer with said cooling fluid; and

a pump that is adapted to circulate said working fluid to said economizer heat exchanger.

80. (Previously Presented) A system, comprising:

a first heat exchanger adapted to receive a fluid comprised of a compressed gas that has exited a final stage of compression in a multi-stage compressor and a working fluid, wherein, when the working fluid is passed through the first heat exchanger,

the working fluid is converted to a vapor via heat transfer from the heat contained in said compressed gas that has exited said first stage of compression of said multi-stage compressor;

at least one turbine adapted to receive said vapor;

an economizer heat exchanger adapted to receive exhaust vapor from said at least one turbine and said working fluid, wherein a temperature of the working fluid is adapted to be increased via heat transfer with said exhaust vapor from said at least one turbine prior to the introduction of said working fluid into said first heat exchanger;

a condenser heat exchanger that is adapted to receive said exhaust vapor from said at least one turbine after said exhaust vapor has passed through said economizer heat exchanger and a cooling fluid, wherein a temperature of said exhaust vapor is reduced via heat transfer with said cooling fluid; and

a pump that is adapted to circulate said working fluid to said economizer heat exchanger.

81. (Previously Presented) A system, comprising:

a first heat exchanger adapted to receive an exhaust fluid from a combustion gas turbine and a working fluid, wherein, when the working fluid is passed through the first heat exchanger, the working fluid is converted to a vapor via heat transfer from the heat contained in said exhaust fluid from said combustion gas turbine;

at least one turbine adapted to receive said vapor and to drive at least one compressor of a refrigeration system to thereby produce refrigeration to chill air entering said combustion as turbine;

a desuperheater heat exchanger adapted to receive exhaust vapor from said at least one turbine and a portion of the working fluid extracted upstream of the first heat exchanger, wherein the temperature of the exhaust vapor from the at least one turbine is adapted to be reduced via heat transfer by direct contact and mixing with said working fluid in said desuperheater heat exchanger;

a condenser heat exchanger that is adapted to receive working fluid exiting said desuper-heater heat exchanger and a cooling fluid, wherein a temperature of said working fluid is adapted to be reduced via heat transfer with said cooling fluid in said condenser heat exchanger; and

a pump adapted to circulate said working fluid to said first heat exchanger.

82. (Previously Presented) The system of claim 81 wherein said at least one turbine is adapted to utilize at least one intermediate refrigeration heat exchanger adapted to receive the cooled working fluid and exhaust a warm refrigerant vapor while cooling an intermediate operating fluid utilized in a heat exchanger adapted to receive said intermediate operating fluid and provide cooling for the air entering the turbine.

83. (Previously Presented) The system of claim 81 wherein said at least one turbine is adapted to utilize at least one intermediate refrigeration heat exchanger adapted to receive the cooled working fluid and exhaust a war refrigerant vapor while cooling an intermediate operating fluid utilized in a heat exchanger adapted to receive said intermediate operating fluid and provide cooling for the air entering the combustion gas turbine and at least some fraction of the work produced by the turbine is used to produce electrical power.

84. (Previously Presented) A system, comprising:

a first heat exchanger adapted to receive a fluid extracted from an intermediate stage of compression of a multi-stage gas compressor of a combustion gas turbine and a working fluid, wherein, when the working fluid is passed through the first heat exchanger, the working fluid is converted to a vapor via heat transfer from the heat contained in said fluid extracted from said intermediate stage of compression;

at least one turbine adapted to receive said vapor and to drive at least one compressor of a refrigeration system to thereby produce refrigeration which is utilized to chill air entering said combustion gas turbine;

an economizer heat exchanger adapted to receive exhaust vapor from said at least one turbine and said working fluid, wherein a temperature of the working fluid is adapted to be increased via heat transfer with said exhaust vapor from said at least one turbine prior to the introduction of said working fluid into said first heat exchanger;

a condenser heat exchanger that is adapted to receive said exhaust vapor from said at least one turbine after said exhaust vapor has passed through said economizer heat exchanger and a cooling fluid, wherein a temperature of said exhaust vapor is reduced via heat transfer with said cooling fluid; and

a pump that is adapted to circulate said working fluid to said economizer heat exchanger.

85. (Previously Presented) The system of claim 84 wherein said at least one turbine is adapted to utilize at least one intermediate refrigeration heat exchanger adapted to receive the cooled working fluid and exhaust a warm refrigerant vapor while cooling an intermediate operating fluid utilized in a heat exchanger adapted to receive said intermediate operating fluid and provide cooling for the air entering the turbine.

86. (Previously Presented) A system, comprising:

a first heat exchanger adapted to receive a fluid extracted from an intermediate stage of compression of a multi-stage gas compressor of a combustion gas turbine and a working fluid, wherein, when the working fluid is passed through the first heat exchanger, the working fluid is converted to a vapor via heat transfer from the heat contained in said fluid extracted from said intermediate stage of compression;

at least one turbine adapted to receive said vapor and to drive at least one compressor of a refrigeration system to thereby produce refrigeration which is utilized to chill air entering said combustion gas turbine;

a desuperheater heat exchanger adapted to receive exhaust vapor from said at least one turbine and a portion of the working fluid extracted upstream of the first heat exchanger, wherein the temperature of the exhaust vapor from the at least one turbine is adapted to be reduced via heat transfer by direct contact and mixing with said working fluid in said desuperheater heat exchanger;

a condenser heat exchanger that is adapted to receive working fluid exiting said desuper-heater heat exchanger and a cooling fluid, wherein a temperature of said working

fluid is adapted to be reduced via heat transfer with said cooling fluid in said condenser heat exchanger; and

a pump adapted to circulate said working fluid to said first heat exchanger.

87. (Previously Presented) The system of claim 86 wherein said at least one turbine is adapted to utilize at least one intermediate refrigeration heat exchanger adapted to receive the cooled working fluid and exhaust a warm refrigerant vapor while cooling an intermediate operating fluid utilized in a heat exchanger adapted to receive said intermediate operating fluid and provide cooling for the air entering the turbine.

88. (Previously Presented) A system, comprising:

a first heat exchanger adapted to receive a superheated vapor from a high pressure stage of a refrigeration system that is utilized exclusively for the purpose of replacing a condenser in the refrigeration system and a working fluid, wherein, when the working fluid is passed through the first heat exchanger, the working fluid is converted to a vapor via heat transfer from the heat contained in said fluid from said heat source;

at least one turbine adapted to receive said vapor;

a desuperheater heat exchanger adapted to receive exhaust vapor from said at least one turbine and a portion of the working fluid extracted upstream of the first heat exchanger, wherein the temperature of the exhaust vapor from the at least one turbine is adapted to be reduced via heat transfer by direct contact and mixing with said working fluid in said desuperheater heat exchanger;

a condenser heat exchanger that is adapted to receive working fluid exiting said desuperheater heat exchanger and a cooling fluid, wherein a temperature of said working fluid is adapted to be reduced via heat transfer with said cooling fluid in said condenser heat exchanger; and

a pump adapted to circulate said working fluid to said first heat exchanger.

89. (New) A system, comprising:

a first heat exchanger adapted to receive a fluid from a heat source and a working fluid, wherein, when the working fluid is passed through the first heat exchanger, the working fluid is converted to a supercritical vapor via heat transfer from the heat contained in said fluid from said heat source, wherein a temperature-enthalpy profile of said working fluid in the first heat exchanger is approximately linear as the working fluid changes state from a liquid to a supercritical vapor;

at least one turbine adapted to receive said vapor;

an economizer heat exchanger adapted to receive exhaust vapor from said at least one turbine and said working fluid, wherein a temperature of the working fluid is adapted to be increased via heat transfer with said exhaust vapor from said at least one turbine prior to the introduction of said working fluid into said first heat exchanger;

a condenser heat exchanger that is adapted to receive said exhaust vapor from said at least one turbine after said exhaust vapor has passed through said economizer heat exchanger and a cooling fluid, wherein a temperature of said exhaust vapor is reduced via heat transfer with said cooling fluid;

a pump that is adapted to circulate said working fluid to said economizer heat exchanger; and

a suction drum positioned downstream of said first heat exchanger and upstream of said turbine, said supercritical vapor from said first heat exchanger being adapted to flow through said suction drum to said turbine.